

A. Claims

1. (previously presented) An internal combustion engine cylinder head camshaft bearing ladder, comprising:

a first body with an aperture to facilitate threaded connection of said body to a cylinder head with a cut out for receivingly mounting a cam shaft, said first body also having a pocket; and

a solenoid actuator positioned within said pocket for activating a switchable rocker arm assembly.

2. (original) A camshaft bearing ladder as described in claim 1, having connected thereto a plurality of solenoid actuators.

3. (original) A camshaft bearing ladder as described in claim 1, having a plurality of cut outs for reception of a plurality of cam shafts.

4. (original) A camshaft bearing ladder as described in claim 2, wherein said solenoid actuator is encapsulated within said camshaft bearing ladder pocket by a polymeric material.

5. (original) A camshaft bearing ladder as described in claim 1, wherein said solenoid actuator has leads connected with an integrated circuit board.

6. (original) A camshaft bearing ladder as described in claim 5, wherein said circuit board is sealably connected with a pass through connector.

7. (original) A camshaft bearing ladder assembly as described in claim 6, having at least a second solenoid actuator for a second rocker arm and wherein said second solenoid actuator has leads sealably connected with said integrated circuit board.

8. (previously presented) A method of assembling a portion of a solenoid actuator to a dual operational rocker arm assembly, comprising:

connecting a solenoid actuator in a pocket of a camshaft bearing ladder which receivingly mounts a camshaft; and

connecting said camshaft bearing ladder with a cylinder head thereby positioning said solenoid actuator adjacent said rocker arm assembly.

9. (original) A method as described in claim 8, further including encapsulating said solenoid actuator within said camshaft bearing ladder pocket with a polymeric material.

10. (original) A method as described in claim 9, wherein said polymeric material is an epoxy resin.

11. (original) A method as described in claim 9, further including connecting leads of said solenoid actuator with an encapsulated circuit board.

12. (original) A method as described in claim 11, further including connecting said circuit board with a pass through connector.

13. (original) An internal combustion engine comprising:
a combustion chamber;
a head with a passageway fluidly connected with said chamber;
a valve controlling fluid communication between said chamber and said passageway;
a cam shaft rotatably mounted on said head by a camshaft bearing cap ladder, said ladder having a pocket formed therein;
a rocker arm for actuating said valve, said rocker arm having first and second modes of operation of said valve; and
a solenoid actuator for actuating said rocker arm between said first and second modes of operation, said solenoid actuator being connected with said bearing cap ladder within said pocket.

14. (original) An internal combustion engine as described in claim 13, wherein said bearing cap ladder is connected with a second solenoid which actuates a second rocker arm assembly.

15. (original) An internal combustion engine as described in claim 14, wherein said second solenoid actuates a rocker arm which is actuated by a second cam shaft rotatably mounted on said head.

16. (original) An internal combustion engine as described in claim 14 wherein said second solenoid actuates a rocker arm assembly actuated by a cam shaft common with the other rocker arm assembly.

17. (original) An internal combustion engine as described in claim 14, wherein said solenoid has leads provided by a printed circuit board connected with said bearing cap ladder.

18. (original) An internal combustion engine as described in claim 17, wherein said printed circuit board is connected with a pass through connector.

19. (original) An internal combustion engine as described in claim 18, wherein said pass through connector passes through a cam cover connected with said head.

20. (original) An internal combustion engine, comprising:
a combustion chamber;
a head with an air passageway fluidly connected with said chamber;
first and second air passageways fluidly connected with said chamber;
first and second valves controlling fluid communication between said chamber and said respective first and second passageways;
first and second rocker arms for actuating said first and second valves respectively, said rocker arms having first and second modes of operation;
first and second cam shafts rotatably connected to said head by a bearing cap ladder;
first and second solenoid actuators for actuating said rocker arms between said first and second modes of operation, said solenoid actuators being connected in pockets of said bearing cap ladder;
integrated circuit boards with leads sealably connected with said solenoids;
a pass through connector connected with said leads of said integrated circuit board; and
a camshaft bearing cap cover penetrated by said pass through connector to allow for electrical connection to said solenoids.

21. (previously presented) An internal combustion engine cylinder head camshaft bearing ladder, comprising:

a first body with an aperture to facilitate threaded connection of said body to a cylinder head with at least two cut outs for receivingly mounting a camshaft on a side of said cam shaft generally opposite a combustion chamber of said engine, said first body also having a pocket; and

a solenoid actuator positioned within said pocket for activating a switchable rocker arm assembly.

22. (previously presented) A method of assembling a portion of a solenoid actuator to a dual operational rocker arm assembly, comprising:

connecting a solenoid actuator in a pocket of a camshaft bearing ladder which receivingly mounts a camshaft on a side of said camshaft generally opposite a combustion chamber of an internal combustion engine; and

connecting said camshaft bearing ladder with a cylinder head thereby positioning said solenoid actuator adjacent said rocker arm assembly.

23. (previously presented) An internal combustion engine comprising:

a combustion chamber;

a head with a passageway fluidly connected with said chamber;

a valve controlling fluid communication between said chamber and said passageway;

a camshaft rotatably mounted on said head on a side of said camshaft generally opposite said combustion chamber by a camshaft bearing cap ladder, said ladder having a pocket formed therein;

a rocker arm for actuating said valve, said rocker arm having first and second modes of operation of said valve; and

a solenoid actuator for actuating said rocker arm between said first and second modes of operation, said solenoid actuator being connected with said bearing cap ladder within said pocket.

24. (previously presented) An internal combustion engine, comprising:

a combustion chamber;

a head with an air passageway fluidly connected with said chamber;

first and second air passageways fluidly connected with said chamber;

first and second valves controlling fluid communication between said chamber and said respective first and second passageways;

first and second rocker arms for actuating said first and second valves respectively, said rocker arms having first and second modes of operation;

first and second camshafts rotatably connected to said head by a bearing cap ladder on a side of said camshafts generally opposite said combustion chambers;

first and second solenoid actuators for actuating said rocker arms between said first and second modes of operation, said solenoid actuators being connected in pockets of said bearing cap ladder;

integrated circuit boards with leads sealably connected with said solenoids;

a pass through connector connected with said leads of said integrated circuit board; and

a camshaft bearing cap cover penetrated by said pass through connector to allow for electrical connection to said solenoids.